State of Alaska
FY2008 Governor's Operating Budget

Department of Transportation/Public Facilities
Design and Construction
Results Delivery Unit Budget Summary

Design and Construction Results Delivery Unit

Contribution to Department's Mission

Improve the transportation system in Alaska and protect the health and safety of the people of Alaska by developing transportation and public facilities projects and constructing safe, environmentally sound, reliable, and cost effective highways, airports, harbors, docks, and buildings.

Core Services

Design: Project planning requires engineering, environmental and estimating services. Starting with the initial project funding, Design has primary responsibility for a project through the completion of a bid-ready set of plans, specifications for the legal and technical contract terms, and an engineer's estimate for the cost of construction. Accompanying the project plans and specifications, Design staff prepares geotechnical reports for the project site and materials sources, obtains the necessary interests in lands for the project, obtains the environmental clearances and project permits, and prepares plans and obtains agreements with utility companies for any utility relocations that may be required.

Design also provides a wide range of technical support functions to the department, other state and federal agencies, local governments, and the public. Examples include design assistance, traffic speed studies, bridge inspections, materials testing, the processing of utility, right-of-way and traffic permits, preparation of environmental documents, a full research program, and the Local Technical Assistance Program (both funded by the Federal Highway Administration). The Design and Construction Standards section develops standards that are in use throughout the state.

Construction: Administers construction contracts, provides field inspection and construction oversight, provides quality assurance that construction documentation and materials are in conformance with contract requirements during construction and closeout of projects, and reports Disadvantaged Business Enterprises/Minority Business Enterprise activity on construction projects.

Contracts: Reviews construction documents, provides bid packages, advertises and awards contracts, prepares certified bid tabulations, and helps resolve bidding disputes. This unit also coordinates, solicits, selects, prepares and administers professional services agreements.

Project Control: Coordinates and programs project funding; administers state and federal grants; provides engineering management support; prepares and manages the component's operating budget; develops, enhances, and maintains a management reporting system for capital projects; provides regional network administration and desktop computer support; and processes time and equipment charges to projects.

End Results	Strategies to Achieve Results
A: Improve DOT&PF efficiency. Target #1: Reduce the percent of administrative and engineering costs to 30% or less of total project costs. Measure #1: Percentage of administrative and engineering costs when compared to total project costs. Target #2: Advertise 75% of new highway and aviation construction project funding by April 30th. Measure #2: Percentage of highway and aviation construction project funding (determined by engineer's estimate) advertised by a given date. Target #3: Reduce the percentage difference between bid and final contractor payments to 8%.	**A1: Reduce design and engineering costs.** Target #1: Maintain design engineering (PE) averages at 15% or less of total project costs. Measure #1: Design engineering (PE) as a percentage of total project costs. Target #2: Improve the percentage of projects that exceed $1 million having formal pre-authorization scope meetings to 75%. Measure #2: The percentage of projects (with estimated construction bid amount over 1 million dollars) having formal pre-authorization scope meeting as compared to total projects receiving authority to proceed.

Measure #3: The percentage difference between contractor bids and final contractor payments.	**A2: Reduce construction project costs.** Target #1: Maintain construction engineering (CE) costs at 14.5% or less of total contractor payments. Measure #1: Construction engineering (CE) as a percentage of total contractor payments. **A3: Accelerate project closeouts.** Target #1: Close out 80% of construction contracts within the next fiscal year following the project completion date as stated in the Project Completion Letter. Measure #1: Percentage of contracts completed (i.e. Letter of Final Acceptance issued) by the end of the fiscal year following the project completion date.

Major Activities to Advance Strategies

- Design roads to appropriate standards
- Minimize in-house costs for preconstruction services
- Manage consultant contracts in a cost effective manner
- Timely close-out of construction projects
- Compare and contrast cost of in-house CE with consultant CE
- Cross training between Design and Construction
- Involve Construction in design process from project scoping
- Explore innovative contracting methods
- Greater use of technology in the field
- Create electronic tools to increase efficiency creating Project Development Authorizations (PDAs)
- Capture information electronically from PDAs so that double entry into other databases is not required
- Permit tracking and electronic signatures to be used in the project control process

FY2008 Resources Allocated to Achieve Results

FY2008 Results Delivery Unit Budget: $104,013,300

Personnel:	
Full time	755
Part time	227
Total	982

Performance Measure Detail

A: Result - Improve DOT&PF efficiency.

Target #1: Reduce the percent of administrative and engineering costs to 30% or less of total project costs.
Measure #1: Percentage of administrative and engineering costs when compared to total project costs.

Percent of Project Costs Attributed to Administrative and Engineering Costs

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2004	21%	26%	23%	22%	30%
FFY 2005	20%	22%	23%	21%	30%
FFY 2006	21%	23%	13%	18%	30%

Analysis of results and challenges: Percentages are calculated by summing up all administrative and engineering costs – i.e, all costs that are not direct construction payments, right-of-way acquisition/relocation

payments, or utility relocation payments – and dividing those administrative and engineering costs by the total of all project costs. The aim is to reduce the overhead that accompanies public project development, to get more of each capital dollar into construction or other related fieldwork that directly benefits the private sector and the traveling public.

Target #2: Advertise 75% of new highway and aviation construction project funding by April 30th.
Measure #2: Percentage of highway and aviation construction project funding (determined by engineer's estimate) advertised by a given date.

Percent of construction contracts advertised by April 30th

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2005	31%	42%	51%	38%	75%
FFY 2006	47%	56%	27%	42%	75%

Analysis of results and challenges: Percentages are calculated by summing the engineer's estimates for all federal and general fund construction projects advertised by the target dates, then dividing that total by the total engineer's estimate amount of construction projects advertised in that federal fiscal year.

Regional project development will be accelerated to meet this target. Once the department has reached this goal, maintaining it will be little different in terms of work production than what is experienced today. The acceleration phase could result in a temporary increase in inflated construction costs due to less competition among already busy contractors.

The state's general fund program grew substantially in 2005 and again in 2006, and is expected to account for a larger portion of the overall highway program for the next several years.

Target #3: Reduce the percentage difference between bid and final contractor payments to 8%.
Measure #3: The percentage difference between contractor bids and final contractor payments.

Difference between contractor bids and final contractor payments

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2004	14%	29%	9%	18%	8%
FFY 2005	15%	12%	6%	13%	8%
FFY 2006	12%	11%	5%	11%	8%

Analysis of results and challenges: Simply apportioning more of each capital dollar to the private sector is not by itself more efficient. Poorly designed projects and subsequent costly change orders can pour money into the private sector yet be a waste of public funds. The challenge will be to increase the proportion of payments to contractors without sacrificing the quality of engineering and contract administration. This target addresses that concern.

This measure will be determined after a construction project is closed and the final contract amount is known. It will help determine how effective the department is in engineering and administering construction projects. Project cost overruns typically result from quantity overruns, change orders that correct design errors and address unforeseen conditions, and changes to project scope made after contract award. Although elimination of all cost overruns is unrealistic and even cost-prohibitive, they can be controlled by efficient designs, improved negotiation skills, and disciplined scope management.

A1: Strategy - Reduce design and engineering costs.

Target #1: Maintain design engineering (PE) averages at 15% or less of total project costs.
Measure #1: Design engineering (PE) as a percentage of total project costs.

Percent of Design Costs to Total Project Costs

Fiscal	Central Region	Northern Region	Southeast Region	RDU Total	Target

Year					
FFY 2004	9%	10%	8%	9%	15%
FFY 2005	7%	8%	9%	8%	15%
FFY 2006	8%	9%	8%	9%	15%

Analysis of results and challenges: Ratios are calculated by summing the final design costs of all highway and aviation construction projects that receive final acceptance in a given state fiscal year, then comparing the total to the total project costs.

To provide design engineering services at 15% of the total project costs is a measure of the department's efficiency in the delivery of bid documents. The number is trending upward. The increasing complexity of the design process requires more effort than in previous years. Examples include public involvement demands, regulatory agency constraints, utility relocation costs, right of way costs, and the higher cost of utilizing consultants.

Target #2: Improve the percentage of projects that exceed $1 million having formal pre-authorization scope meetings to 75%.

Measure #2: The percentage of projects (with estimated construction bid amount over 1 million dollars) having formal pre-authorization scope meeting as compared to total projects receiving authority to proceed.

Percent of Projects having Scope Meetings

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2004	47%	0%	50%	37%	75%
FFY 2005	74%	44%	100%	64%	75%
FFY 2006	88%	42%	100%	77%	75%

This performance measure was established in the Governor's FY06 budget.
Northern Region reporting for FFY05 reflects using the "one step" process for scoping meetings.

Analysis of results and challenges: Ratios are calculated by summing the number of projects with formal scoping meetings against the total projects receiving authority to proceed.

Bringing all of the department's stakeholders together to discuss all aspects of the project prior to authorization leads to more efficient project development. People view scoping of projects as inconvenient. They may have other high, time sensitive priorities, but it is important to the overall project development efficiency to reach a consensus on the project scope.

A2: Strategy - Reduce construction project costs.

Target #1: Maintain construction engineering (CE) costs at 14.5% or less of total contractor payments.
Measure #1: Construction engineering (CE) as a percentage of total contractor payments.

Construction Engineering Expressed as a Percentage of Total Contractor Payments

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2004	10.2%	11.1%	12.1%	10.6%	14.5%
FFY 2005	13.0%	11.4%	11.1%	12.3%	14.5%
FFY 2006	11.8%	11.8%	10.9%	11.8%	14.5%

Analysis of results and challenges: This measure will be accurately determined after a construction project is closed and all construction charges are accounted for. It will not include Indirect Cost Allocation Plan (ICAP) charges. Contract administration costs over the past several years have run at about 14.5%; however, the state's growing capital program is straining department resources and forcing the department to outsource more of its CE work to other agencies as well as the private sector. Outsourced CE tends to be more expensive, so maintaining this target will be a challenge.

This measure is also a challenge because of the remoteness of most of the projects (increasing travel and

transportation costs), and because the requirements of the federal funding agencies and the expectations of the traveling public tend to increase over time. All of these factors drive administrative costs up. This measure will change from year to year based on the type and size of projects completed. Small urban projects may require the same level of oversight, i.e., staff, as large rural projects. Projects that consist primarily of asphalt paving are typically completed in a short time resulting in low engineering costs compared to the contract value.

A3: Strategy - Accelerate project closeouts.

Target #1: Close out 80% of construction contracts within the next fiscal year following the project completion date as stated in the Project Completion Letter.

Measure #1: Percentage of contracts completed (i.e. Letter of Final Acceptance issued) by the end of the fiscal year following the project completion date.

Percent of Construction Contracts Closed Before End of Next Fiscal Year

Fiscal Year	Central Region	Northern Region	Southeast Region	RDU Total	Target
FFY 2004	28%	52%	81%	45%	80%
FFY 2005	41%	60%	79%	59%	80%
FFY 2006	33%	76%	73%	57%	80%

Analysis of results and challenges: The burden of closing out a project largely falls on the same people who must prepare for their next construction assignment or who are already actively engaged in other construction projects. Nevertheless, timely closeout of projects is an important cost-savings benefit to the state as the task itself will be done more efficiently and in some cases its completion will permit leftover construction funds to be released to fund other projects.

Central Region is exploring several avenues to facilitate meeting this measure: increased staffing, hiring of consultants that specialize in the tasks necessary for contract closure, and revising P&Ps for record keeping and audits while still meeting federal requirements.

Percentages are calculated by dividing the number of projects completed as stated in the Project Completion Letter, which certifies the completion of physical work, in a given federal fiscal year by the number of projects receiving Final Acceptance, or the contract closure, by the end of the following federal fiscal year.

Key RDU Challenges

- Implementing the terms of the new federal transportation bill, *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU), will take considerable effort by senior staff to establish internal policies and procedures. SAFETEA-LU allows the department to assume authority of the federal environmental process on certain projects.
- The aviation program must meet the challenges of changing federal airport program requirements including an expanded role in developing navigational system design plans. The Federal Aviation Administration (FAA) at the regional and national levels has increasingly restricted timeliness for delivery of both environmental approvals and project funding grants. We also continue to increase our discretionary funding beyond baseline entitlements by developing early delivery of high priority projects.
- A key challenge continues to be to retain experienced engineers, right-of-way agents, and environmental analysts. Many are reaching retirement age. It is difficult to find and retain qualified engineering staff willing to take long-term assignments to remote sites, often requiring exhaustive overtime and on-site presence for up to six months during the summer with little time off.
- Increased security and safety concerns have increased the demands of our Radiation Safety Program. Required Safety Conscious Work Environment training for all construction employees and additional training for the regional radiation safety officers have increased. Greater attention is required for security of nuclear densometers.

Significant Changes in Results to be Delivered in FY2008

No significant changes are anticipated at this time.

Major RDU Accomplishments in 2006

- Prepared contract documents (plans, specifications, and estimates) for the construction and rehabilitation of state-owned transportation infrastructure.
- Completed runway, taxiway, lighting, environmental and safety improvements at rural airports.
- Continued to add security improvements to ferry terminals.
- Paved 21.5 centerline miles of gravel roads.
- Repaved 100.3 centerline miles of roads.
- Reconstructed 49.1 centerline miles of roads.
- Built 7.9 centerline miles of new roads.
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Contact Information

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Design and Construction
RDU Financial Summary by Component

All dollars shown in thousands

	FY2006 Actuals				FY2007 Management Plan				FY2008 Governor			
	General Funds	Federal Funds	Other Funds	Total Funds	General Funds	Federal Funds	Other Funds	Total Funds	General Funds	Federal Funds	Other Funds	Total Funds
Formula Expenditures												
None.												
Non-Formula Expenditures												
SW Design & Engineering Svcs	750.8	0.0	6,770.5	7,521.3	674.0	0.0	8,745.9	9,419.9	1,070.7	0.0	9,479.7	10,550.4
Central Design & Eng Svcs	233.1	0.0	16,131.5	16,364.6	315.7	0.0	17,844.4	18,160.1	794.1	0.0	19,775.5	20,569.6
Northern Design & Eng Svcs	148.2	0.0	13,167.5	13,315.7	153.8	0.0	14,378.0	14,531.8	546.6	0.0	15,944.3	16,490.9
Southeast Design & Eng Svcs	343.7	0.0	7,255.2	7,598.9	264.2	0.0	8,809.4	9,073.6	546.0	0.0	9,722.6	10,268.6
Central Construction & CIP	188.2	0.0	18,414.2	18,602.4	146.0	0.0	19,509.3	19,655.3	669.6	0.0	21,650.8	22,320.4
Northern Construction & CIP	247.2	0.0	13,643.0	13,890.2	290.9	0.0	13,768.4	14,059.3	678.0	0.0	15,234.4	15,912.4
Southeast Region Construction	140.2	0.0	5,623.6	5,763.8	148.0	0.0	6,049.3	6,197.3	363.9	0.0	7,537.1	7,901.0
Totals	**2,051.4**	**0.0**	**81,005.5**	**83,056.9**	**1,992.6**	**0.0**	**89,104.7**	**91,097.3**	**4,668.9**	**0.0**	**99,344.4**	**104,013.3**

Design and Construction
Summary of RDU Budget Changes by Component
From FY2007 Management Plan to FY2008 Governor

All dollars shown in thousands

	General Funds	Federal Funds	Other Funds	Total Funds
FY2007 Management Plan	**1,992.6**	**0.0**	**89,104.7**	**91,097.3**
Adjustments which will continue current level of service:				
-SW Design & Engineering Svcs	306.5	0.0	-316.4	-9.9
-Central Design & Eng Svcs	457.7	0.0	-457.7	0.0
-Northern Design & Eng Svcs	379.0	0.0	-379.0	0.0
-Southeast Design & Eng Svcs	257.7	0.0	-238.1	19.6
-Central Construction & CIP	502.9	0.0	-502.8	0.1
-Northern Construction & CIP	373.7	0.0	-373.7	0.0
-Southeast Region Construction	196.7	0.0	-191.4	5.3
Proposed budget increases:				
-SW Design & Engineering Svcs	90.2	0.0	1,050.2	1,140.4
-Central Design & Eng Svcs	20.7	0.0	2,388.8	2,409.5
-Northern Design & Eng Svcs	13.8	0.0	1,945.3	1,959.1
-Southeast Design & Eng Svcs	24.1	0.0	1,151.3	1,175.4
-Central Construction & CIP	20.7	0.0	2,644.3	2,665.0
-Northern Construction & CIP	13.4	0.0	1,839.7	1,853.1
-Southeast Region Construction	19.2	0.0	1,679.2	1,698.4
FY2008 Governor	**4,668.9**	**0.0**	**99,344.4**	**104,013.3**